NASA Procedural Requirements

NPR 7120.11
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COMPLIANCE IS MANDATORY

NASA Health and Medical Technical Authority (HMTA) Implementation

Responsible Office: Office of the Chief Health & Medical Officer

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Preface

P.1 Purpose

a. This document provides the procedural requirements and processes for implementing Health and Medical Technical Authority (HMTA) throughout the Agency.

P.2 Applicability

a. The requirements of this NASA Procedural Requirements (NPR) shall be applied to protect the health and safety and safeguard the performance of crewmembers involved in human space flight activities and to enable successful human space flight and other Research and Technology (R&T) programs/projects, as appropriate.

b. This NPR shall be applicable to NASA Headquarters and NASA Centers, including Component Facilities and Technical and Service Support Centers. This NPR applies to the Jet Propulsion Laboratory (JPL), other contractors, grant recipients, or parties to agreements only to the extent specified or referenced in the appropriate contracts, grants, or agreements.

c. The requirements in this NPR shall apply to all human space exploration activities including, but not limited to, space systems, space suits, planetary habitats, planetary rovers, and surface vehicles.

d. The requirements in this NPR shall apply to internationally-provided space systems as documented in distinct separate agreements, such as joint or multilateral agreements.

e. The requirements in this NPR shall apply to R&T programs/projects, as appropriate.

f. The requirements in this NPR shall apply to specific elements of the NASA Occupational Health Program, as described herein.

P.3 Authority

a. 51 U.S.C. 20113(a) of the National Aeronautics and Space Act, as amended.

b. NPD 1000.0, NASA Governance and Strategic Management Handbook.

c. NPD 1000.3, The NASA Organization.

P.4 Applicable Documents and Forms

a. NPD 1800.2, NASA Occupational Health Program.

b. NPD 7100.8, Protection of Human Research Subjects.

c. NPD 8900.5, NASA Health and Medical Policy for Human Space Exploration.

d. NPR 1800.1, NASA Occupational Health Program Procedures.

e. NPR 7120.5, NASA Space Flight Program and Project Management Requirements.

f. NPR 7120.8, NASA Research and Technology Program and Project Management Requirements.

g. NPR 8900.1, Health and Medical Requirements for Human Space Exploration.

h. NASA-STD-3001, NASA Space Flight Human System Standard, Volume 1 - Crew Health.

i. NASA-STD-3001, NASA Space Flight Human System Standard, Volume 2 - Human Factors, Habitability and Environmental Health.

j. Letter of Agreement between the Office of the Chief Health and Medical Officer (OCHMO), the Office of the Chief Engineer (OCE), and the Office of Safety and Mission Assurance (OSMA), Collaboration for Health and Medical Technical Authority (HMTA) Implementation, signed June 14, 2010.

P.5 Measurement and Verification

a. The Chief Health and Medical Officer (CHMO) will monitor compliance with the requirements of this NPR through participation in the OCE Requirements Compliance Surveys.

P.6 Cancellation

None.

/S/
Dr. Richard S. Williams
Chief Health and Medical Officer

Chapter 1. Introduction

1.1 Health and Medical Technical Authority Overview

1.1.1 NASA has established the technical authority process as part of its system of checks and balances to provide independent oversight of programs and projects in support of safety and mission success through the selection of specific individuals at delegated levels of authority. HMTA originates with the Administrator and is formally delegated to the Associate Administrator (AA) and then to the CHMO.

1.1.2 HMTA implements the responsibilities of the OCHMO to assure that Agency health and medical policy, procedural requirements, and standards are addressed in program/project management when applicable and appropriate. HMTA provides independent oversight of all health, medical, and space crew/personnel performance matters that either arise in association with the execution of NASA programs or projects, or are embedded in NASA programs or projects.

1.1.3 In this NPR, a requirement is identified by "shall," a good practice by "should," permission by "may" or "can," expected outcome or action by "will," and descriptive material by "is" or "are" (or another form of the verb "to be").

1.2 Health and Medical Technical Authority Background

1.2.1 The CHMO is responsible for implementing HMTA at the NASA Centers. Due to resource (e.g., lack of personnel) and infrastructure (e.g., lack of medical expertise) differences, HMTA implementation varies among Centers, thus differing significantly from the OCE and OSMA Technical Authority (TA). These differences increase risk that HMTA issues will either be missed or identified too late in the program/project life cycle to allow for design modifications without significant impact to cost and schedule.

1.2.2 To assist the CHMO with HMTA implementation, the Chief Engineer and the Chief, Safety and Mission Assurance (SMA) agreed to support HMTA implementation through the utilization of Engineering and SMA personnel as HMTA awareness and communication links at each Center (not including Johnson Space Center (JSC) due to its existing HMTA infrastructure), as described in this NPR (Appendix D). This support arrangement for HMTA implementation was documented in a Letter of Agreement between OCHMO, OCE, and OSMA, "Collaboration for Health and Medical Technical Authority (HMTA) Implementation," signed June 14, 2010 (Appendix C).

1.3 Health and Medical Technical Authority Scope

1.3.1 For NASA program/project management, the scope of HMTA shall encompass the following:

a. Health, medical, and human performance, policy, requirements, and standards for all human space flight programs and projects.

b. Health, medical, and human performance policy, procedural requirements, and technical standards levied on or supported by all R&T programs and projects.

c. NASA-unique occupational and environmental health requirements addressed in paragraph 1.4.3 of this NPR that are not mandated by external Federal entities (e.g., Occupational Safety and Health Administration and Environmental Protection Agency).

d. Health, medical, and human performance issues that arise where there is no NASA-unique or Federally mandated health/medical requirement or standard. In such cases, program/project management shall consult with the appropriate level of HMTA to resolve the issue.

1.3.2 HMTA is not related to non-program/project management health and medical issues (e.g., Center operations). Except as described in paragraph 1.3.1.c of this NPR, HMTA is not related to program/project health and medical issues which are governed by laws, regulations, and requirements external to NASA (e.g., Occupational Safety and Health Administration, Environmental Protection Agency, and research subject protection regulations). NASA policy for occupational health is provided in NPD 1800.2, NASA Occupational Health Program. NASA policy for protection of human research subjects is provided in NPD 7100.8, Protection of Human Research Subjects.

1.4 NASA Health and Medical Policy, Procedural Requirements, and Technical Standards

1.4.1 The OCHMO establishes Agency-level health and medical policy, procedural requirements, and technical standards for use by programs and projects when applicable and appropriate. NPD 1000.0, NASA Governance and Strategic Management Handbook, identifies the CHMO as the Agency HMTA. NPD 8900.5, NASA Health and Medical Policy for Human Space Exploration, establishes NASA health and medical policy for human space exploration. NPR 8900.1, Health and Medical Requirements for Human Space Exploration, establishes requirements and processes for implementing NASA health and medical policy for human space exploration.

1.4.2 The OCHMO establishes and maintains NASA health, medical, and human performance technical standards for human space exploration as follows:

a. NASA-STD-3001, NASA Space Flight Human System Standard, Volume 1 - Crew Health, establishes standards for providing a healthy and safe environment for crewmembers and for providing health and medical programs for crewmembers during all phases of space flight.

b. NASA-STD-3001, NASA Space Flight Human System Standard, Volume 2 - Human Factors, Habitability and Environmental Health, addresses habitability and environmental health, focuses on human physical and cognitive capabilities and limitations and defines standards for spacecraft (including orbiters, habitats, and suits), internal environments, facilities, payloads, and related equipment, hardware, and software systems with which the crew interfaces during space operations.

1.4.3 Additionally, the OCHMO has developed several NASA-unique occupational health requirements that are included in the scope of HMTA. These requirements are addressed in the following specific sections of NPR 1800.1, NASA Occupational Health Program Procedures:

a. Section 2.15, Shift Work and Balancing Work-Rest Cycles.

b. Sections 4.2.3.2 and 4.2.3.3, Occupational Exposure Limits (OELs).

c. Section 4.5, Reproductive and Developmental Health.

d. Section 4.6, Nanotoxicology.

e. Section 4.8, Hearing Conservation.

1.4.4 Table 1 provides a list of relevant Agency and HMTA policy and requirements documents.

HMTA Document Number	Title
NPD 1000.0	NASA Governance and Strategic Management Handbook
NPD 1000.3	The NASA Organization
NPD 8900.5	NASA Health and Medical Policy for Human Space Exploration
NPR 8900.1	Health and Medical Requirements for Human Space Exploration
NPR 1800.1	NASA Occupational Health Program Procedures (Sections - 2.15, 4.2.3.2, 4.2.3.3, 4.5, 4.6 and 4.8 apply to HMTA)
NASA-STD-3001	NASA Space Flight Human System Standard, Volume 1: Crew Health
NASA-STD-3001	NASA Space Flight Human System Standard, Volume 2: Human Factors, Habitability and Environmental Health

Table 1 - HMTA Documentation

Chapter 2. Health and Medical Technical Authority (HMTA) Roles and Responsibilities

2.1 The CHMO is the HMTA as authorized by NPD 1000.0, NASA Governance and Strategic Management and NPD 8900.5, NASA Health and Medical Policy for Human Space Exploration. The CHMO shall be responsible for:

a. Providing overall leadership of the HMTA process for human space flight programs/projects, R&T programs/projects (as appropriate), and NASA-unique occupational health requirements described in paragraph 1.4.3 of this NPR.

b. Establishing and maintaining unique NASA health, medical, and human performance policy, procedural requirements, and technical standards.

c. Ensuring effective implementation of the HMTA process (including documentation, HMTA points of contact, compliance verification, and resolution of HMTA dissenting opinions) throughout the Agency.

d. Appointing a Chief Medical Officer (CMO) at designated Centers, who shall be a NASA civil service physician.

e. Developing, with Center Directors, Center HMTA Implementation/Awareness Plans for each Center.

f. Developing HMTA awareness training modules for use by engineering and SMA personnel at NASA Centers.

g. Certifying, through established Agency processes, that programs and projects comply with Agency health and medical requirements prior to human space flight missions.

h. Designating an OCHMO HMTA point of contact (POC) for resolution of non-human space flight issues.

i. Hearing dissenting opinions resulting from HMTA decisions when they cannot be resolved at lower levels.

2.2 The Chief Engineer, through agreement with the CHMO (Appendices C and D), is responsible for supporting HMTA implementation through the utilization of engineering personnel as HMTA awareness and communication links at each Center, as described in this NPR. The OCE will assist the OCHMO in implementing HMTA awareness training at NASA Centers. Compliance verification of HMTA implementation across the Agency will be assessed through OCHMO participation in the OCE Requirements Compliance Survey process.

2.3 The Chief, SMA, through agreement with the CHMO (Appendices C and D), is responsible for supporting HMTA implementation through the utilization of SMA personnel as HMTA awareness and communication links at each Center, as described in this NPR. The OSMA will assist the OCHMO in implementing HMTA awareness training at NASA Centers.

2.4 NASA Center Directors shall be responsible for:

a. Concurring with the CHMO appointment of a Center CMO, where assigned, to exercise HMTA for specified activities conducted at that Center.

b. Developing with the CMO (if applicable) and the OCHMO a Center HMTA Implementation/Awareness Plan.

c. Ensuring that necessary resources are provided to effectively implement HMTA at the Center.

d. Providing assurance that NASA programs and projects resident at the Center are in compliance with established health and medical policy, procedural requirements, and technical standards through the processes specified in the Center's HMTA Implementation/Awareness Plan.

2.5 The CMO at the designated Center shall be responsible for:

a. Exercising HMTA at the Center as described in this NPR and the Center's HMTA Implementation/Awareness Plan.

b. Establishing interfaces with the Program/Project Engineering and SMA Technical Authorities as the HMTA awareness and communication links, as described in Appendix C of this NPR.

c. Establishing interfaces with assigned POCs from the JSC CMO and the HQ OCHMO for identification and resolution of HMTA issues.

d. Ensuring that proposed changes to, and waivers of, health and medical policy, procedural requirements, and technical standards are submitted to and acted on by the appropriate level of HMTA.

e. Ensuring that dissenting opinions for health and medical policy, procedural requirements, and technical standards are acted on by the appropriate level of HMTA.

f. Developing with the OCHMO a Center HMTA Implementation/Awareness Plan and obtaining the Center Director's concurrence.

g. Providing recommendations for improvements to health and medical technical standards and requirements.

2.6 At Centers other than JSC, program/project engineering and SMA TAs shall be responsible for:

a. Implementing HMTA awareness within the assigned program/project at the Center, as described in this NPR and the Center's HMTA Implementation/Awareness Plan.

b. Implementing communication flow paths within the program/project team for engineering and SMA personnel to identify potential HMTA issues.

c. Implementing interfaces and communication flow paths with the appropriate level of HMTA (CMO, JSC POC, or OCHMO POC) for identification and resolution of potential HMTA issues.

d. Ensuring that appropriate program/project engineering and SMA personnel have received HMTA awareness training provided by the OCHMO.

e. In coordination with the appropriate HMTA contact, informing the program/project manager and Center management of potential HMTA issues.

Chapter 3. Health and Medical Technical Authority (HMTA) Implementation

3.1 Chief Medical Officer

3.1.1 At NASA Centers with civil service physicians, the CHMO appoints, with the concurrence of the Center Director, a CMO who shall exercise HMTA for that Center. The CMO is independently funded from programs and projects at the Center. There is no individual delegated HMTA at Centers without a CMO. At those Centers, the Center Director, with concurrence of the CHMO, shall develop an HMTA Implementation/Awareness Plan to assure HMTA is appropriately and effectively implemented at the Center.

3.1.2 The roles and responsibilities of the CMO are described in paragraph 2.5 of this NPR.

3.1.2.1 For human space flight, the CHMO has solely delegated HMTA to the CMO at JSC. All potential human space flight health, medical, and human performance issues identified at other Centers shall be coordinated with JSC, as described in Appendix D.

3.1.2.2 The JSC CMO shall assign an HMTA interface POC for human space flight issues arising at the other Centers. The JSC CMO (through the assigned POC) shall be responsible to:

a. Ensure that qualified human system discipline expertise is engaged to support programs and projects for issues arising at other Centers (see Appendix D) and that appropriate delegations of authority are established to efficiently support program and project day-to-day operations until the issue is resolved.

b. Provide a path to escalate technical concerns outside of the program/project chain of command, if warranted.

c. Integrate all disciplines within the HMTA to bring solutions to the program/project.

d. Ensure that proposed tailoring of standards/requirements by programs and projects are technically acceptable, and evaluate and disposition requests for waivers.

e. Ensure coordination of all HMTA human space flight issues at a Center with the Center CMO, when one exists.

3.2 HMTA Implementation/Awareness Plan

3.2.1 The CMO (where assigned), in collaboration with the CHMO and Center Director, shall develop an HMTA Implementation/Awareness Plan, based on the Letter of Agreement between the OCHMO, the OCE, and the OSMA, "Collaboration for Health and Medical Technical Authority (HMTA) Implementation," signed June 14, 2010. Where no CMO is assigned, the Center Director, in collaboration with the CHMO, is responsible for developing the plan. The plan shall describe the effective implementation of HMTA at each Center with required organizational and funding separation from programs and projects.

3.2.1.1 The HMTA Implementation/Awareness Plan shall be developed according to the processes described in Appendix D, including incorporation of the HMTA Process Flow Chart (Figure D-3), to ensure consistent implementation of HMTA throughout the Agency and shall:

a. Describe the flow-down and reporting processes, including role and responsibilities unique to each Center's resources.

b. Describe the HMTA awareness roles and responsibilities, interfaces, and communication flow paths for engineering and SMA personnel to identify potential issues to the appropriate level of HMTA (Figures D-1 and D-2).

3.2.2 For Centers with an assigned CMO, the HMTA Implementation/Awareness Plan shall describe the specific level of delegation of HMTA to the CMO and the interfaces with the program/project engineering and SMA TA as the HMTA awareness and communication links.

3.2.3 The HMTA Implementation/Awareness Plan can be incorporated into the Center's engineering and/or SMA Technical Authority Implementation Plan with the concurrence of the CMO (where assigned) and the CHMO.

3.2.4 The HMTA Implementation/Awareness Plan shall include concurrence from the CHMO, Center Director, CMO (where assigned), and the Center engineering and SMA TAs.

Chapter 4. Dissenting Opinions

4.1 A Dissenting Opinion is a substantive disagreement with a decision or action that is based on a sound rationale (not on unyielding opposition) that an individual judges is of sufficient importance that it warrants a specific review and decision by higher-level management, and the individual specifically requests that the dissent be recorded and resolved by the Dissenting Opinion process. The decision on whether the issue in question is of the significance that warrants the use of the Dissenting Opinion process is the responsibility and personal decision of the dissenting individual.

4.2 Every program/project team member has a fundamental responsibility to express his/her views to the appropriate decision maker in a professional and timely manner. Unresolved health and medical issues within a program/project team should be quickly elevated to achieve timely resolution at the appropriate level.

4.3 Dissenting Opinions shall be addressed using the process set forth in NPR 7120.5, NASA Space Flight Program and Project Management Requirements, or NPR 7120.8, NASA Research and Technology Program and Project Management Requirements (if appropriate).

4.4 The CHMO shall hear appeals of the Center Health and Medical TA decisions when they cannot be resolved at lower levels. Resolution may be attempted at successively higher levels of Programmatic Authority and TA until resolved. Final appeals are made to the Office of the Administrator.

Appendix A. Definitions

Chief Medical Officer (CMO): A medical doctor assigned to designated NASA Centers by the Agency Chief Health and Medical Officer (CHMO) who serves as the delegated Health and Medical Technical Authority (HMTA) for that Center.

Dissenting Opinion: A Dissenting Opinion is a disagreement with a decision or action that is based on a sound rationale (not on unyielding opposition) that an individual judges is of sufficient importance that it warrants a specific review and decision by higher-level management, and the individual specifically requests that the dissent be recorded and resolved by the Dissenting Opinion process.

Health: The physiological, psychological, dental status, and well-being of an individual.

Health and Medical Technical Authority (HMTA): HMTA implements the responsibilities of the Office of the Chief Health and Medical Officer (OCHMO) to assure that Agency health and medical policy, requirements, and technical standards are addressed in program/project management, when applicable and appropriate. HMTA provides independent oversight of all health, medical, and crew performance matters that either arise in association with the execution of NASA programs or projects, or are embedded in NASA programs or projects.

Medical: The care and treatment of an individual for illness or injury.

Permissible Outcome Limits (POL): An acceptable maximum decrement or change in physiological or behavioral parameter, as the result of exposure to the space environment. A biological/clinical parameter is measured.

Space Permissible Exposure Limits (SPEL): The quantifiable limit of exposure to a space flight factor over a given length of time. A physical/chemical agent is being measured.

Technical Authority (TA): TAs are part of NASA's system of checks and balances and provide independent oversight of programs and projects in support of safety and mission success through the selection of individuals at delegated levels of authority. These individuals are the TAs. TA delegations are formal and traceable to the Administrator. Individuals with TA are funded independently of a program or project.

Technical Standards: NASA documents that contain common and repeated use of rules, conditions, guidelines, or characteristics for products or related processes and production methods and related management system practices.

Appendix B. Acronyms

CMO	Chief Medical Officer
CHMO	Chief Health and Medical Officer
HMTA	Health and Medical Technical Authority
JPL	Jet Propulsion Laboratory
JSC	Johnson Space Center
NASA-STD	NASA Technical Standard
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
OCE	Office of the Chief Engineer
OCHMO	Office of the Chief Health and Medical Officer
OEL	Occupational Exposure Limit
OSMA	Office of Safety and Mission Assurance
POC	Point of Contact
POL	Permissible Outcome Limits
R&T	Research and Technology
SMA	Safety and Mission Assurance
SPEL	Space Permissible Exposure Limits
TA(s)	Technical Authority(ies)
U.S.C.	United States Code

Appendix C. Letter of Agreement Between Office of the Chief Health and Medical Officer, Office of the Chief Engineer, and Office of Safety and Mission Assurance on Health and Medical Technical Authority Implementation

National Aeronautics and Space Administration

Headquarters
Washington, DC 20546--0001

Letter of Agreement
June 14, 2010

Chief Health and Medical Officer

TO: Distribution

FROM: HQ/Chief Health and Medical Officer
HQ/Director, Safety and Mission Assurance
HQ/Chief Engineer

SUBJECT: Collaboration for Health and Medical Technical Authority (HMTA) Implementation

This Letter of Agreement (LOA) establishes the collaborative relationship between the Office of the Chief Health and Medical Officer, the Office of the Chief Engineer, and the Office of Safety and Mission Assurance for the implementation of Health and Medical Technical Authority (HMTA) throughout the Agency. HMTA is one part of the Agency's technical authority governance model along with Engineering and Safety and Mission Assurance (S&MA) technical authority. The intent of this LOA is to establish a collaborative agreement to efficiently utilize existing infrastructure (personnel, processes, etc.) at NASA Center to ensure effective implementation of HMTA. The methodology established by this LOA will be utilized in support of all relevant NASA Programs and Projects.

BACKGROUND

The Health and Medical community throughout the Agency does not have the resources/infrastructure to accomplish the HMTA role in a manner consistent with Engineering and S&MA. Currently the NASA Chief Health and Medical officer (CHMO) delegates HMTA to the Chief Medical Officer (CMO) at five Centers:

- Johnson Space Center
- Kennedy Space Center
- Goddard Space Flight Center
- Dryden Flight Research Center
- Ames Research Center

The other five Centers do not have a CHO. Other than Johnson Space Center, the four Centers with a CMO do not have staff with Program/Project experience.

Unlike Engineering and S&MA, none of the Centers have HMTA mainstreamed at the working level in the day-to-day Program/Project processes. At the Program/Project level, Engineering and S&MA Technical Authority work is enabled by the contributions of the program/project working-level engineers/S&MA personnel with support from the Center engineering/S&MA infrastructure. They are

responsible for raising issues to the Program/Project Manager, Program/Project TAs or Center Engineering/S&MA management, and are a key resource for identifying/resolving these issues. The Engineering and S&MA Technical Authorities are represented on the program/project internal control boards, change boards, and review boards (or their equivalents). Current HMTA implementation increases the risk that HMTA issues will be missed completely or identified too late in the Program/Project life cycle to allow for design modifications without significant impact to cost and schedule

AGREEMENT FOR HMTA IMPLEMENTATION

To effectively implement HMTA across the Agency, Engineering and S&MA personnel already involved in the day to day Program/Project work will be utilized as the "eyes and ears" for the CHMO at the Centers. The Engineering and S&MA personnel will not be assigned as HMTAs but serve as the awareness and communication nodes for potential HMTA issues at each Center.

The OCHMO will develop and provide HMTA awareness training to Engineering and S&MA personnel at each Center so they understand the types of issues impacting HMTA. The OCHMO, OSMA, and OCE will determine the appropriate level of personnel to be trained. The training will incorporate the relationships established by this LOA. The long term goal for the training is to adopt a methodology to ensure HMTA awareness is maintained at the Centers as new programs and projects start up and personnel changes occur in the future.

The OCHMO will establish communication flow paths for Engineering and S&MA personnel to identify potential issues to the proper HMTA authority (i.e., Center CMO, JSC CMO, CHMO).

The OCHMO will revise or recommend changes to all applicable documents to clearly define the process for implementation of HMTA and the roles/responsibilities of Center Engineering and S&MA personnel as the "eyes and ears" for HMTA issues.

Oversight of the effectiveness of this agreement will be provided through OCHMO participation in the OCE Requirements Compliance Surveys at each Center.

FINANCIAL OBLIGATIONS

There will be no transfer of funds or other financial obligations in connection with this agreement. Each organization will fund its own participation in carrying out the implementation of the terms of this agreement. The OCHMO will fund the development and conduct of the initial HMTA awareness training at the Centers. The OCHMO will also fund the long-term training development.

Bryan O'Connor Chief, Safety and Mission Assurance	Michael Ryschkewitsch Chief Engineer	Richard Williams Chief Health and Medical Officer
DATE: 16 June 2010	Date: 21 June 2010	Date: 14 June 2010

Distribution:
Center Directors
MD AAs
Center Chief Engineers
Center Chief Safety Officers
Center Chief Medical Officers

Appendix D. Health and Medical Technical Authority Implementation Process Description

(Based on the Letter of Agreement between the Office of the Chief Health and Medical Officer (CHMO), the Office of the Chief Engineer (OCE), and the Office of Safety and Mission Assurance (OSMA), "Collaboration for Health and Medical Technical Authority (HMTA) Implementation," signed June 14, 2010.)

D.1 Health and Medical Technical Authority Awareness

D.1.1 At the program/project level, engineering and SMA TA work is enabled by the contributions of the program/project working-level engineers and SMA personnel with support from the Center engineering/SMA infrastructure. The engineering and SMA TAs are also represented on the program/project internal control boards, change boards, and review boards (or their equivalents). Therefore, engineering and SMA program/project TAs have a timely awareness of issues that could potentially impact health and medical policy, procedural requirements, or technical standards and require HMTA participation in their resolution.

D.1.2 Unlike engineering and SMA, HMTA is not integrated at the working level in the day-to-day program/project processes except for JSC. To enhance HMTA awareness at all Centers, the CHMO will utilize the participation of engineering and SMA TAs in the day-to-day program/project work as the HMTA awareness "eyes and ears." Their responsibility is to identify potential health, medical, and human performance issues and notify the appropriate levels of HMTA in a timely manner (see paragraph 2.6 of this NPR).

D.1.3 To ensure HMTA awareness at the Centers, the OCHMO will provide HMTA awareness training for use by the appropriate engineering and SMA personnel at each Center. The training will include identification of health and medical policy, procedural requirements, technical standards, and the HMTA problem reporting and resolution process established by this NPR. The HMTA training will be incorporated into existing engineering and SMA training by the OCE and OSMA.

D.2 Health and Medical Technical Authority Problem Reporting and Resolution Flow Paths

D.2.1 In implementing HMTA at each Center other than JSC, two distinct flow paths for problem reporting and resolution are established - one for human space flight, which flows through a JSC POC (Figure D-1) and one for all other issues (including R&T when appropriate) which flows through an OCHMO POC (Figure D-2). Additionally, the HMTA process flow path is dependent on whether or not the Center has an assigned CMO. The JSC CMO will designate a JSC HMTA POC for human space flight issues (paragraph 3.1.2.2), and the CHMO will designate an OCHMO HMTA POC for non-human space flight issues (paragraph 2.1.h).

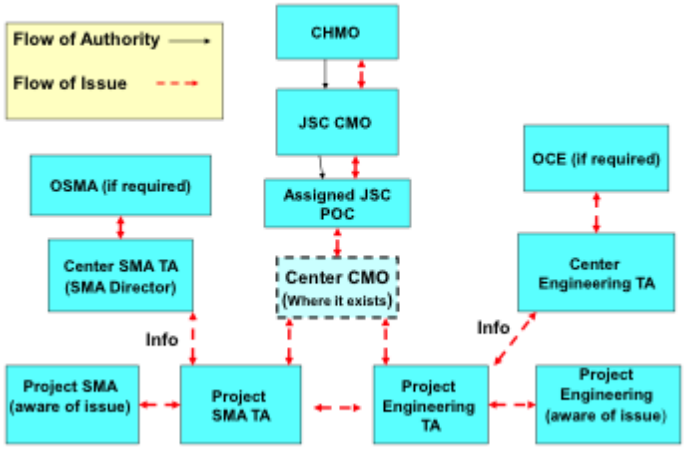


Figure D-1- Human Space Flight Health and Medical Technical Authority Awareness Flow Paths

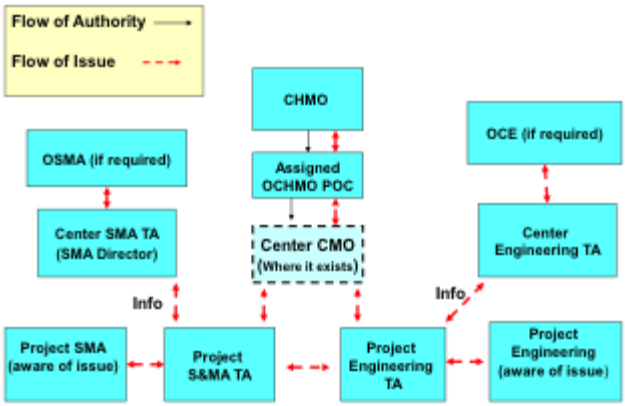


Figure D-2- Other Health and Medical Technical Authority Awareness Flow Paths (including R&T)

D.2.1.1 At Centers with a CMO, the program/project engineering and SMA TAs will notify the CMO of the potential HMTA issue and support the resolution of the issue as required. The CMO will be the Center's primary interface with JSC for coordinating resolution of potential human space flight HMTA issues and the OCHMO POC for non-human space flight issues. For Centers without a CMO, the program/project engineering/SMA TA will be the Center's primary interface with JSC for coordinating resolution of potential human space flight HMTA issues and the OCHMO POC for non-human space flight issues. The appropriate Center engineering TA or SMA TA is responsible for discussion with the Agency's OCE or OSMA, if required.

D.3 Summary of HMTA Problem Reporting and Resolution Flow Paths

(Note: paragraph numbers correspond to Figure D-3, HMTA Process Flow Chart)

1. Engineering or SMA personnel working on a program/project become aware of an issue that potentially can impact health and medical policy, procedural requirement, or technical standard.

2. The person identifying the potential issue notifies the engineering or SMA TA assigned to the program/project.

3. The program/project engineering or SMA TA notifies the appropriate HMTA to assist in the resolution.

4. The program/project engineering or SMA TA will notify their Center management of potential HMTA issues.

For Centers with a CMO

5. If a CMO is assigned to the Center, the program/project engineering or SMA TA notifies and discusses the potential issue with the CMO.

6. The CMO decides if the potential issue is related to human space flight.

7. If related, the CMO discusses the potential issue with the POC from JSC (JSC has been delegated HMTA from the OCHMO for human space flight). The JSC POC will identify the appropriate HMTA technical expert(s) to resolve the issue.

8. If unrelated to human space flight, the CMO discusses the potential issue with the POC from the OCHMO. The OCHMO POC will identify the appropriate HMTA technical expert(s) to resolve the issue.

9. The CMO supports the resolution of the issue (e.g., providing program/project or Center POCs, providing additional data if needed, etc.).

For Centers without a CMO

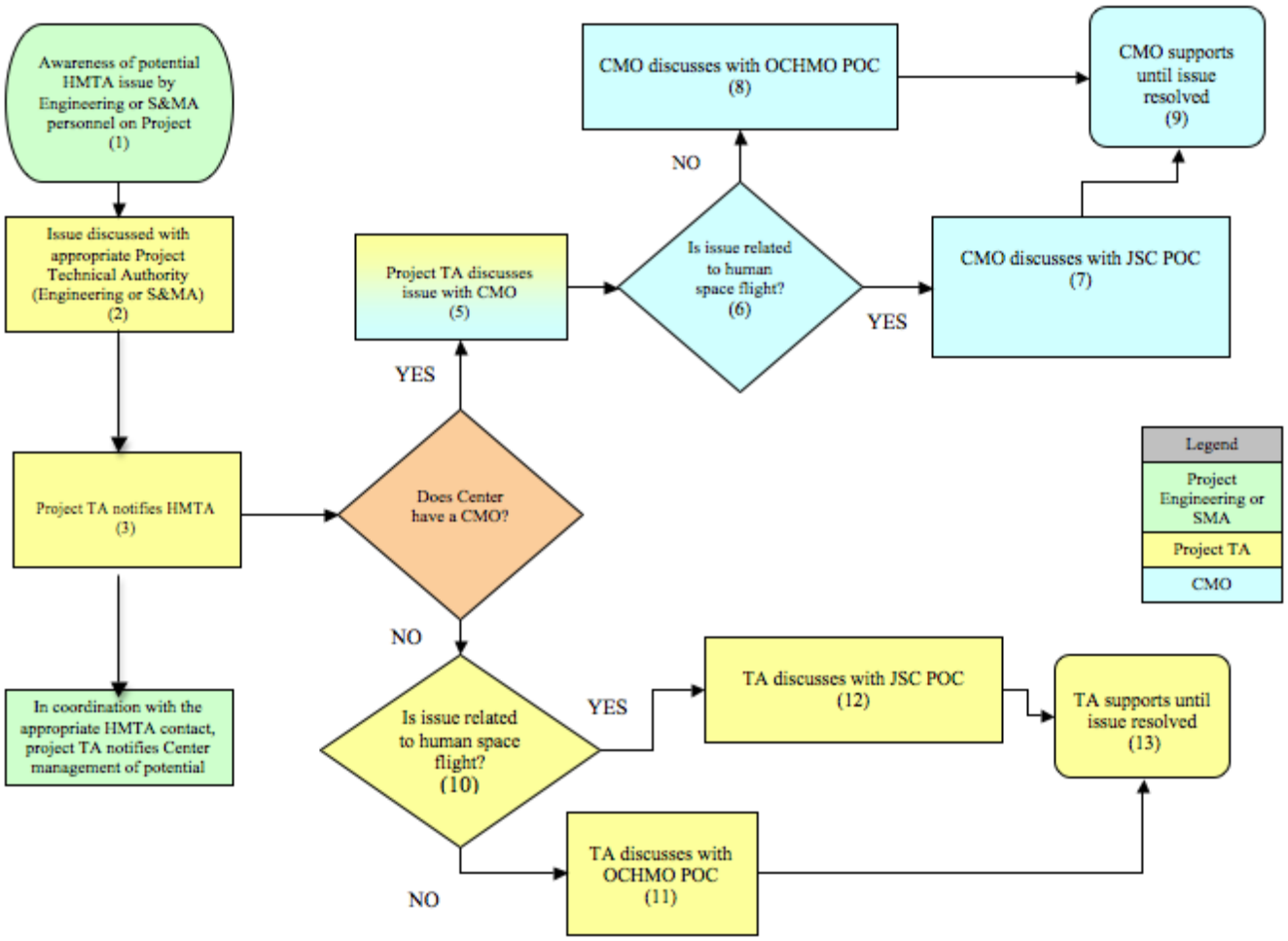
10. The engineering or SMA TA decides if the potential issue is related to human space flight.

11. If related, the program/project engineering or SMA TA discusses the potential issue with the POC from JSC (JSC has been delegated HMTA by the OCHMO for human space flight). The JSC POC will identify the appropriate HMTA technical expert(s) to resolve the issue.

12. If unrelated to human space flight, the program/project engineering or SMA TA discusses the potential issue with the POC from the OCHMO. The OCHMO POC will identify the appropriate HMTA technical expert(s) to resolve the issue.

13. The HMTA POC will confer with the program/project engineering or SMA TA if additional information or clarification is needed regarding the identified issue (e.g., providing additional program/project or Center POCs, providing additional data if needed, etc.).

Figure D-3 HMTA Process Flow Chart


Awareness of potential HMTA issue by Engineering or S&MA personnel on Project (1)
Issue discussed with appropriate Project Technical Authority (Engineering or S&MA) (2)
Project TA notifies HMTA (3)
In coordination with the appropriate HMTA contact, project TA notifies Center management of potential
Does Center have a CMO?
YES
Project TA discusses issue with CMO (5)
NO
Is issue related to human space flight? (10)
YES
TA discusses with JSC POC (12)
TA supports until issue resolved (13)
NO
TA discusses with OCHMO POC (11)
Is issue related to human space flight? (6)
NO
CMO discusses with OCHMO POC (8)
CMO supports until issue resolved (9)
YES
CMO discusses with JSC POC (7)
Legend
Project Engineering or SMA
Project TA
CMO

Appendix E. References

NPD 7120.4, NASA Engineering and Program/Project Management Policy.